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ABSTRACT

One approach to classification of criminal cases suggests that controls are best allocated to those at risk and services to those in need. The Level of Supervision Inventory (LSI), a 58-item risk/needs checklist developed in Ontario Probation and Parole, was completed on the basis of reviews of official records and interviews with subjects and collaterals for adult probationers (N=853) and prisoners (N=227) serving sentences of 90 days to 2 years. Results showed that the areas of risk and need combined to form a scale of internal consistency. An underlying variable corresponding to a propensity for rule violations was suggested. Total LSI scores were most strongly associated with measures of generalized rule violations, emotional/personal disturbance, and skill deficits. In both prison and probation samples, intake LSI scores were positively correlated with indices of official levels of supervision. Further investigation suggested that the predictive validity of risk/needs assessments may increase dramatically upon reassessment. The same pattern of predictive validity was found across correctional settings; samples differing in age, gender, and criminal history; measures of deviance; and over variations in the frequency and seriousness of new charges. Results support the principle of allocating intensive services according to risk and need. (The LSI is appended.) (NRB)

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Some Psychometrics of Practical Risk/Needs
Assessment in Corrections

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Abstract

Some Psychometrics of Practical Risk/Needs Assessment

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Risk/needs assessments based upon interviews and reviews of official records are a contextually appropriate approach to case classification in community and institutional corrections. They tap an underlying dimension of propensity for rule violations with acceptable degrees of internal consistency and factorial and convergent validity. Moreover, the particular instrument examined (the Level of Supervision Inventory) revealed moderate to strong degrees of predictive criterion validity in several correctional settings across a variety of definitions of rule violations including an ability to identify the more frequent and serious offenders. Most promising, the findings of an experimental study suggested that the allocation of correctional resources to those most at risk and most in need was an effective strategy in the exercise of discretion.

Problem

Correctional agencies are expected to manage the criminal penalty in fair and cost-efficient ways. They are also asked to contribute to protection of the public through the control of recidivism. Case classification systems are a prerequisite to judgments of fairness since they specify how individual differences link with the discretionary allocation of correctional controls and services. An approach to classification which may serve the objectives of fairness, efficiency and crime control is based on the principle that controls are best allocated to those at risk and services to those in need. "Risk" factors refer to those measurable attributes of individual offenders and their situations which forecast recidivism. "Needs" refer to those dynamic risk factors which are ethically and practically amenable to influence and which -- when they do change -- are associated with changes in the chances of recidivism. A feature of many risk factors is that they are assessable by way of structured interviews and reviews of official records -- assessment approaches which are more contextually appropriate for many correctional settings than personality approaches.

This paper reviews two underinvestigated issues in risk/needs classification with a focus on the validity of one such instrument, the Level of Supervision Inventory (LSI), Andrews (1983a). One issue is the nature of the theoretical variables underlying risk assessments. This issue is explored through comparisons with alternative assessments of risk, examinations of internal consistency and factor structure and reviews of the generality of

predictive criterion validity across measures of deviance, settings and subjects. Secondly, we report on a small but truly experimental investigation of the principle that correctional resources are best allocated to those most at risk.

The Risk Instrument

The Level of Supervision Inventory (LSI) is a risk/needs checklist developed in Ontario Probation and Parole (Andrews, 1983a; Andrews, Kiessling & Komisar, 1982). Table 1 presents the 58 items and the eleven psycho-social, situational and legal subtotals. Subtotal "Probation Conditions" is not employed with prison samples. The LSI is completed on the basis of reviews of official records and interviews with the subject and collaterals. The total score is the simple sum of checked items.

Three samples of adult probationers will be referred to: 598 consecutive admissions to two different offices in the same city, 561 of whom have now been followed for an average of 814 days (Andrews, 1983a); 198 probationers from the same offices participating in an ongoing project (Andrews & Kiessling, in progress); the first 57 probationers from a different city for whom we have both an intake LSI and a retest completed within the first six months of their probation period. Two samples of adult male prisoners serving sentences of at least 90 days but less than two years have been studied: 75 cases transferred to community-based group homes (Bonta & Motiuk, 1983) and a 152 consecutive admissions to a regional detention centre (Bonta & Motiuk, in progress).

Insert Tables 1 and 2 about here

Results

The Construct Validity of Criminal Propensity

Inspection of Table 2A reveals that the diverse areas of risk and need combine to form a scale of more than modest internal consistency. The alphas were in the .70s in both the prison and probation samples. The first of three factors to emerge in a factor analysis of the probation data accounted for 75% of the variance with all LSI subtotals loading substantially, from 0.3417 (Probation Conditions) to 0.7063 (Education/Employment). The first of two factors in the prisoner data accounted for 83% of the variance (all loadings above .4081).

An underlying variable of "generalized trouble" was also suggested by correlations with paper and pencil questionnaires (Table 2B). Partially over-lapping batteries were administered to a sample of prisoners and a sample of probationers as alternative assessments of the domains of risk and need targeted by LSI subtotals Education/Employment, Family, Companions, Alcohol/Drugs, Emotional/Personal and Attitudes. The total LSI scores were most strongly associated with measures of generalized rule violations (Socialization, Psychopathy, Sensation-Seeking), emotional/personal disturbance (Neuroticism-acting out, anxiety) and skill deficits (Inadequacy-Immaturity, Self-Control). Other attributes associated with high LSI scores included: strong ties to crime in terms of personal attitudes supportive of crime as well as criminal associates; weak ties to convention in the sense of personal devaluation of school and work, alienation, and conflict at home and at school; alcohol problems and experimentation with a variety of drugs.

The generality of the predictive criterion validity of the LSI is apparent by inspection of Table 3. In both prison and probation samples intake LSI scores were positively correlated with indices of official levels of supervision (Table 3A). Among prisoners, the higher the LSI score the greater the probability of assignment to higher security institutions, the greater the number of contacts with mental health professionals and the lower the chances of release by means other than regular termination of sentence. Among probationers, LSI scores were associated with initial level of supervision assigned, number of contacts with the probation office and the chances of an early termination or closure.

Insert Tables 3 and 4 about here

Table 3B reveals predictive correlations with a variety of indices of rule violations including: performance ratings completed by correctional staff; misconduct rates within prison, failures in a community-based group home, and inprogram recidivism within probation; and, recidivism upon follow-up. Within the prison sample, 84% of the total days spent in segregation were served by the very high risk inmates (30% of the sample had LSI scores of 24 or greater). They were also responsible for the majority of misconduct reports (60%) including assaults (60%). Within the probation sample, 94% of those recidivists who were incarcerated upon reconviction and 90% of the multiple reconviction cases fell in the high or very high risk groups (46% of the probationers). The high risk groups included not just those most likely to get into trouble but the more frequent and more serious of the inprogram offenders.

The sample of 561 probationers was further divided according to office location, age, gender and criminal record and the correlations between LSI scores and a five-level outcome index were consistently significant (Table 3C) . Note, in addition how the magnitude of the predictive validity estimates break the .40 "sound barrier" (Monahan, 1981) as the sensitivity of the criterion was increased by considering different levels of outcome (favorable early closures without recidivism through reconvictions leading to incarceration).

Finally, Table 3D suggests that the predictive validity of risk/needs assessments may increase dramatically upon reassessment. The tabled values are based on the first 57 probationers on whom we have retest LSIs and the variance in recidivism accounted for increased from 17% to 52%. The corresponding figures for the more sensitive outcome index were 27% and 61%.

The Interaction of Risk and Level of Service.

An ongoing experimental investigation of the training of citizen volunteers for assistant probation officer roles provided an opportunity to explore the Level of Service - by - Risk interaction suggested by the guiding principle of classification according to risk and need. Probationers were randomly assigned to routine one-to-one supervision by professionals or to an augmented two-to-one supervision by volunteer-professional teams. Preliminary analyses confirmed that the augmented service condition was associated with significantly more client contacts. Table 4 reveals that the augmentation of services was associated with poorer outcomes among the lower risk cases and with better outcomes among the higher risk

cases. The positive effects of intensive services were statistically significant on both the outcome and recidivism measures in the case of the higher risk cases. The negative effect on low risk cases was significant statistically only with the outcome index as the dependent variable. The major effect of augmented services for low risk cases was to reduce the chances of an early case closure.

Conclusions

There is strong evidence that the risk/needs scores derived from the LSI reflect an underlying variable corresponding to a propensity for rule violations ("generalized trouble"). Across correctional settings, across samples differing in age, gender and criminal history, across measures of deviance, and over variations in the frequency and seriousness of new charges the same pattern of predictive validity was found. The assessments of problems in a variety of areas of living formed a single scale of reasonably high internal consistency and that generalized trouble factor accounted for 75% to over 80% of the variance in the subtotal intercorrelation matrix. The magnitude of the correlations with measures such as Socialization, Psychopathy, Neuroticism (acting out), Sensation-Seeking, and Self-Control all suggest an antisocial personality syndrome. However, like Robins (1978), we hesitate to link immediately with the underlying pathology perspective since the indicators we sampled could just as easily, for example, be interpreted from a broad social learning perspective. Within the latter framework, no particular factor is crucial with reference to criminal behavior. Rather, the chances of criminal activity are a

positive function of the number and variety of ties to crime and a negative function of ties to convention. Personal and social ties to crime and convention are dynamic attributes and, in theory, they are part of a mutual causation system which may well account for the statistical emergence of a general "trouble" factor. Expanded analyses of the dynamic properties of needs assessments should precede closure on the issue of the nature of a general propensity for crime (Andrews, 1983b).

The experimental study supported the principle of allocating intensive services according to risk and need. Like other explorations of the risk principle noted elsewhere (Andrews, 1983c), augmented services were most effective with cases in need. We look forward to studies which document how many of the "false positives" in the prediction sense are better viewed as examples of the effectiveness of resource allocation strategies.

Propensity for crime assessed by way of interviews and reviews of official records is not the only important factor in case classification. However, apart from the details of the penalty specified by the sentencing court, it is, perhaps the most normatively appropriate and the standard against which alternative and adjunct approaches must be tested.

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Table 1

The Level of Supervision Inventory (LSI-VI)²**A CRIMINAL HISTORY**

- 1 Any prior convictions, adult/number
- 2 Two or more prior convictions
- 3 Three or more prior convictions
- 4 Three or more present offences/number
- 5 Arrested under age 16
- 6 Ever incarcerated upon conviction
- 7 Escape history - institution
- 8 Ever punished for institutional misconduct/number
- 9 Charge laid or parole suspended during prior community supervision
- 10 Official record of assault/violence

B EDUCATION/EMPLOYMENT

When in labour market:

- 11 Currently unemployed
- 12 Frequently unemployed
- 13 Never employed for full year
- 14 Ever fired

School or when in school:

- 15 Less than grade 10
- 16 Less than regular grade 12
- 17 Suspended or expelled at least once

Homemaker, pensioner: 18 only
 School, work, unemployed:
 18, 19, 20

- 18 Participation/Performance ()
- 19 Peer interactions ()
- 20 Authority interactions ()

C FINANCIAL

- 21 Problems ()
- 22 Reliance upon social assistance

D FAMILY/MARITAL

- 23 Dissatisfaction with marital or equivalent situation ()
- 24 Nonrewarding, parental ()
- 25 Nonrewarding, other relatives ()
- 26 Criminal - Family/Spouse

E ACCOMMODATION

- 27 Unsatisfactory ()
- 28 3 or more address changes last year/number
- 29 High crime neighbourhood

F LEISURE/RECREATION

- 30 No recent participation in an organized activity
- 31 Could make better use of time ()

G COMPANIONS

- 32 A social isolate
- 33 Some criminal acquaintances
- 34 Some criminal friends
- 35 Few anti-criminal acquaintances
- 36 Few anti-criminal friends

H ALCOHOL/DRUG PROBLEMS

- 37 Alcohol problem, ever
- 38 Drug problem, ever
- 39 Alcohol problem, currently ()
- 40 Drug problem, currently ()

Specify drug _____

- 41 Law violations
- 42 Marital/Family
- 43 School/Work
- 44 Medical
- 45 Other clinical indicators - Specify: _____

I EMOTIONAL/PERSONAL

- 46 Moderate interference
- 47 Severe interference
- 48 Psychiatric treatment, past
- 49 Psychiatric treatment, current
- 50 Psychological assessment indicated

Area _____

J PROBATION/PAROLE CONDITIONS

- 51 Improvement indicated

Specify conditions:

- 52 _____
- 53 _____
- 54 _____

K ATTITUDES/ORIENTATION

- 55 Supportive of crime
- 56 Unfavourable toward convention
- 57 Poor, toward sentence
- 58 Poor, toward supervision

TOTAL LSI SCORE _____

- 59 _____
- 60 _____
- 61 _____
- 62 _____
- 63 _____

Negative/Positive circumstances not given sufficient attention in the LSI

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Table 2
Internal Consistency and Convergent Validity

A. Internal Consistency						
	Part-Whole Mean	Correlations Range	Alpha	Principal Factor (% Var.)	LSI Mean	SD
Probationers (n=598)	.41	.29 - .57	.72	(74.7)	11.29	7.47
Prisoners (n=152)	.50	.35 - .61	.76	(83.2)	19.01	8.96

B. Multiple Correlations with Paper and Pencil Measures ^a of Problem Domains Targeted by Selected LSI Subtotals							
	Ed./Employ.	Fam./Mar.	Companions	Al./Drugs	Emot./Pers.	Att.	Overall
Probationers (n=192)	.42	.35	.31	.52	.50	.35	.65
Group Home (n=50) ^b	.58	.56	.29	.34	.67	.42	.75

Notes: a) Alternative Measures

Education/Employment

Awareness of Limited Opportunity
Value Education
Value Employment
Scholastic Maladjustment (Peterson,
Quay & Cameron)

Family/Marital

Family Dissension (Peterson et al.)
Family Discord (Harris & Lingoes)
Family Problems (Wiggins)

Companions

Affective Ties to Offenders
Access to Criminal Resources/Models
Identification with Criminal Others

Attitudes

Law, Courts, Police
Tolerance for Law Violations
Chances of a Non-Criminal Future

Alcohol/Drugs

Alcohol Use, last 6 months
Alcohol Related to Offense
Loss of Control (Cahalan)
Different Drugs, ever
Drugs, last 6 months
Drugs, weekly use
MacAndrew Scale
AAF (Haertzen, Hill, Monroe)

Emotional/Personal

Anxiety (Bendig)
IPAT STEN
Self Esteem (Bennett)
Alienation (Dean)
Inadequacy-Immaturity
(Peterson et al.)
Sensation Seeking
Self Control
Psychopathy (Peterson et al.)
Neuroticism (Peterson et al.)
Socialization (Gough)
Empathy (Hogan)

^b No more than 3 alternative measures allowed to enter the MR in view of small n.

Table 3
Predictive Criterion Validity Estimates

A. Correlations with Official Discretionary Action (n)					
	Level of Control Assigned at Intake	Level of Service Inprogram	Early Discharge/Closure		
Probationers	(90% agreement) (n=598)	.40 (341)	-.30 (561)		
Prisoners	.34 (144)	.25 (98)	-.43 (119)		

B. Prediction of Inprogram Performance and Postprogram Recidivism (n)					
	Staff	Misconduct ^a	Among Misconduct Cases		Follow-up
	Ratings		Segregation ^b	Multiple Offences	Recidivism
Probationers	-.35 (113)	.38 (561)	.39 (76)	.40 (76)	.43 (561)
Prisoners	-.25 (119)	.36 (119)	.37 (53)	.36 (53)	(na)
Group Home	(na)	.52 (75)	(na)	(na)	.40 (75)

(na) = not available

C. Stability of Correlations with 5-level Official Outcome Index (265 Probationers)								
	Office	Gender		Age		Criminal Record		
	One	Two	Men	Women	21-	22+	None	Some
	.59 (109)	.51 (156)	.51 (217)	.60 (48)	.54 (155)	.50 (105)	.57 (172)	.40 (93)

D. The Validity of Intake and Retest LSIs (57 Probationers)		
	Outcome Index	Recidivism
Intake	.52	.42
Retest	.78	.72
MR	.79	.76

Notes: a) A reconviction or a new charge pending among probationers

b) Incarceration upon reconviction in the case of probationers.

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Table 4

Mean Probation Outcome Scores and Inprogram Recidivism Rates
by Intake LSI Risk Level and Level of Service

Risk Level	Level of Service			
	Routine (n)	Augmented (n)	<u>F</u>	<u>p</u>
Mean Outcome Score				
High (12+)	1.58 (12)	1.11 (54)	4.09	.05
Low-Med. (0-11)	.25 (28)	.65 (98)	7.38	.01
Recidivism Rates				
High (12+)	.67 (12)	.33 (54)	4.76	.03
Low-Med. (0-11)	.07 (28)	.14 (98)	1.00	<u>ns</u>
Recidivism Rates (not including technical violations)				
High (12+)	.58 (12)	.28 (54)	4.27	.04
Low-Med. (0-11)	.07 (28)	.14 (98)	<1.00	<u>ns</u>